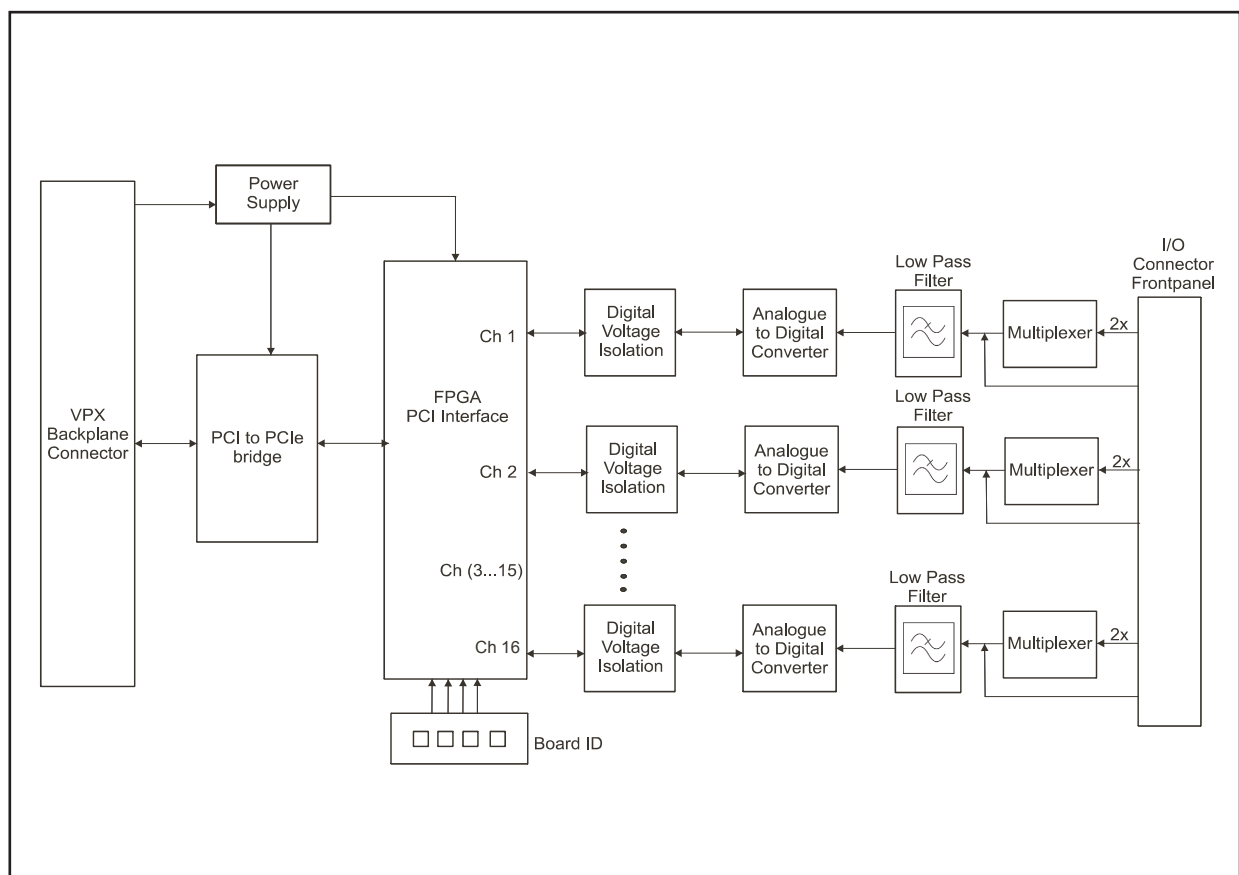


► 3U VPX 32-Channel Isolated Analog to Digital Converter Board

The 32-Channel Isolated Analog to Digital Converter (ADC) board utilises 16 separate digitally isolated analog to digital converter channels, each with a sample rate of 250 kSps.

Each of these channels can be multiplexed two ways to provide 32 channels at a reduced data rate. A Field-Programmable Gate Array (FPGA) and a PCI to PCIe bridge are used to provide access to the digital data over the PCIe bus.

Input channel to system isolation is 2 500 V RMS.



Block Diagram of the 32-Channel Isolated Analog to Digital Converter Board

Architecture

A FPGA is used to control and read the data from the analog to digital converters and provides the PCI Interface for the PCI to PCIe bridge. High-speed digital isolators are used to isolate the system side bus from the analog inputs. Multiplexers are used to increase the total number of differential inputs.



▶ 3U VPX 32-Channel Isolated Analog to Digital Converter Board

Features

- high number of analog inputs
- programmable gain amplifiers
- Air-Cooled version
- Commercial, Industrial and Ruggedised grades
- wide range input (-10 V to +10 V)
- high sample rate of up to 250 000 samples/second
- high-speed digital isolation
- board Identification switch
- wide bandwidth (up to 125 kHz)
- input pin overvoltage protection

Formfactor and Bus Interface	ANSI/VITA 46.0-2007(R2013), VPX Base Standard ANSI/VITA 46.4-2012, PCI Express on VPX Fabric Connector PCI Express Base 1.0a compliant (1 lane, 2,5 GHz)		
Analog Inputs	16 full speed differential or single-ended inputs (also configurable as 32 reduced performance differential or single-ended inputs)		
Maximum Sample Rate	250 000 samples/second per channel (full speed) 10 000 samples/second per channel (reduced performance)		
Resolution	16 Bit		
Voltage Isolation	2 500 V RMS (input channel to system)		
Input Amplifier	Programmable gains of 1, 2, 4 and 8 (optional 1, 10, 100 and 1000) Maximum slew rate of 0,2 V/μs		
Input Bandwidth	up to 125 kHz (-3 dB)		
Power	3,3 V DC at 2,5 A (8,25 Watt); 5 V DC at 0,7 A (3,5 Watt); 12 V DC at 0,2 A (2,4 Watt)		
MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial and Industrial Grades	Ground Benign, Controlled, 25 C	400 000 hrs
	Ruggedised Grade	Ground, Mobile, 45 C Naval, Sheltered, 40 C Airborne, Inhabited Cargo, 55 C	110 000 hrs 190 000 hrs 95 000 hrs
Software Drivers	Support for Linux. VxWorks, Windows and others are costed options.		

Physical Characteristics

Cooling Type	Air-Cooled
Dimensions	100,0 mm x 160,0 mm
Mass	200 g +/- 10 g

Environmental Specifications

Grade	Commercial	Industrial	Ruggedised
Temperature			
- Operating	0 C to +55 C	-15 C to +75 C	-40 C to + 85 C
- Storage	-40 C to +85 C	-40 C to +85 C	-55 C to +125 C
Humidity	0% - 90%	0% - 95%	0% - 95%
Shock	10 g peak for 11 ms	20 g peak for 11 ms	40 g peak for 11 ms
Vibration			
- Sine	2 g (peak) at 10 Hz to 100 Hz	5 g (peak) at 5 Hz to 2 kHz	10 g (peak) at 5 Hz to 2 kHz
- Random	0,04 g²/Hz at 15 Hz to 2 kHz	0,06 g²/Hz at 15 Hz to 2 kHz	0,1 g²/Hz at 15 Hz to 2 kHz

Designation	Cooling	Connector	Grade
CCII/ADC/3UVPX/32C/FP/COM	Air	Frontpanel	Commercial
CCII/ADC/3UVPX/32C/FP/IND	Air	Frontpanel	Industrial
CCII/ADC/3UVPX/32C/FP/RGD	Air	Frontpanel	Ruggedised

Board-Level 32-Channel Isolated ADC